

mean is below and the maximum above the respective average of these data for June.

TABLE 1.—*Solar radiation intensities during June, 1922.*

[Gram-calories per minute per square centimeter of normal surface.]

**Washington, D. C.**

tion obtained at Montezuma, near Calama, Chile, in April and May, 1922. The values of  $\rho/\rho_{\text{sc}}$  are given at air mass 2, or if not the air mass is stated. The reader is referred for further statements regarding the arrangement and meaning of the table to the REVIEW for February, August, and September, 1919.

Date.	Sun's zenith distance.										
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon.
	75th meri- dian time.	Air mass.									Local mean solar time.
	e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.
June 12.....	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
22.....	12.24	0.63	0.73	0.86	1.03	1.25	.....	.....	.....	9.47	
23.....	12.24	.....	0.63	.....	.....	.....	.....	.....	.....	9.47	
25.....	7.57	.....	.....	.....	1.35	.....	.....	.....	.....	8.48	
30.....	17.37	.....	.....	0.49	0.73	1.07	.....	.....	.....	17.37	
Means.....	.....	(0.63)	(0.68)	(0.68)	(0.88)	1.22	.....	.....	.....	.....	
Departures.....	.....	+0.14	+0.02	-0.08	-0.03	-0.04	.....	.....	.....	.....	

**Madison, Wis.**

June	1.....	8.81		1.03	1.18	1.35				7.04
	3.....	8.81			1.20	1.37				8.81
	5.....	11.38			0.86					10.59
	7.....				0.82	1.06				10.59
	12.....	12.24			1.23					9.14
	14.....	12.24		1.04	1.23					11.38
	23.....	14.60			1.13	1.33				
	27.....	11.38			0.91	1.23	0.91			15.11
	29.....	12.24			1.09	1.35				11.81
	Means.....			0.75	0.85					12.68
	Departures.....			0.94	1.03	1.28	(0.91)			
				-0.02	-0.08	-0.02	-0.15			

**Lincoln, Nebr.**

June	2.	8.18	0.65	0.92					7.87
	3.	8.81	0.57	0.96					8.48
	6.	12.68		0.85	1.05	1.30			10.97
	7.	13.61	0.65	0.80	1.01	1.31			11.81
	13.	15.65				1.16	0.90	0.76	18.59
	15.	13.13		0.87	1.04	1.25			14.10
	17.	12.24		1.05		1.40	1.21	1.05	11.38
	20.	12.24	0.68	0.83	1.07	1.40	1.04	0.78	9.47
	22.	12.24	0.77	0.91	1.08	1.32	0.99	0.80	10.97
	23.	13.61	0.70	0.85	1.03	1.27	0.80	0.70	11.81
	26.	12.68				1.35	1.02	0.77	13.61
Means.			0.67	0.88	1.02	1.31	1.01	0.81	0.68
Departures.			-0.07	-0.06	-0.05	-0.04	-0.03	-0.09	-0.08

\* Extrapolated.

TABLE 2.—*Solar and sky radiation received on a horizontal surface.*

Week beginning	Average daily radiation.			Average daily departure for the week.			Excess or deficiency since first of year.		
	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.
May 28...	cal.	cal.	cal.	—25	+4	cal.	—1,891	—1,561	.....
June 4...	469	494	.....	—31	+50	.....	—2,107	—1,208	.....
11...	469	554	.....	—43	—5	.....	—2,408	—1,242	.....
18...	470	514	.....	—11	—38	.....	—2,456	—1,511	.....
25...	510	495	.....	—30	—27	.....	—2,699	—1,699	.....
	433	513	.....						

## MEASUREMENTS OF THE SOLAR CONSTANT OF RADIATION AT CALAMA, CHILE.

By C. G. ABBOT, Assistant Secretary.

[Smithsonian Institution, Washington, August 3, 1922.]

In continuation of preceding publications, the following table contains the results for the solar constant of radia-

Date.	Solar constant.	Method.	Grade.	Transmission coefficient at 0.5 micron.	Humidity.			Remarks.
					$\rho/\rho_{sc}$	V. P.	Relative humidity.	
Apr. 5	1.916	M <sub>2-20</sub>	S.	0.887	10.547	cm. 0.40	Per cent. 24	Some cirri in east and north; near sun during second bolograph.
	1.920	M <sub>1-81</sub>						
	1.930	M <sub>1-46</sub>						
	1.920	W. M.						
Apr. 6	1.901	M <sub>2-20</sub>	S.	.884	.674	.18	7	Some cirri low in east.
	1.907	M <sub>2-20</sub>						
	1.927	M <sub>1-81</sub>						
	1.917	W. M.						
	1.958	F <sub>6</sub>	V. G.	.862	.671	.26	12	
Apr. 7	1.883	M <sub>2-20</sub>						Cloudless.
	1.909	M <sub>2-20</sub>						
	1.921	M <sub>1-81</sub>						
	1.927	W. M.						
Apr. 8	1.938	M <sub>1-46</sub>	S.	.876	1.671	.29	13	Do.
	1.943	M <sub>1-81</sub>						
	1.920	M <sub>1-20</sub>						
	1.937	W. M.						
	1.935	M <sub>2-20</sub>	S.	.879	1.616	.30	25	
Apr. 9	1.927	M <sub>1-81</sub>	S.	.875	1.590	.41	25	Do.
	1.935	M <sub>1-46</sub>						
	1.925	M <sub>1-20</sub>						
	1.935	W. M.						
	1.938	W. M.						
Apr. 11	1.881	M <sub>2-20</sub>	S.	.872	.474	.40	20	Cirri prevented morning observations. Cumuli over high peaks.
	1.882	M <sub>2-20</sub>						
	1.907	M <sub>1-78</sub>						
	1.888	W. M.						
	1.965	M <sub>3-61</sub>	S.	.870	1.386	.41	21	
Apr. 12	1.927	M <sub>1-81</sub>	S.	.883	1.695	.20	7	Cirri prevented further observations. Cirri in north and east.
	1.904	M <sub>1-46</sub>						
	1.935	W. M.						
	1.924	M <sub>1-20</sub>	S.	.883	1.702	.27	10	
	1.942	M <sub>1-20</sub>						
Apr. 13	1.935	W. M.						Distant cirri in west, north, and east.
	1.916	M <sub>1-68</sub>	S.	.884	1.665	.13	5	
	1.921	M <sub>1-53</sub>						
	1.918	W. M.						
	1.911	M <sub>1-68</sub>	S.	.883	1.733	.13	50	
Apr. 30	1.915	M <sub>1-81</sub>	S.	.888	.585	.19	11	Small patches of cirrus scattered about sky. Cirri low in east.
	1.909	M <sub>1-74</sub>						
	1.912	W. M.						
May 8	1.910	M <sub>n-27</sub>	S.	.885	10.577	.18	11	Cirri low in west. Cloudless.
	1.857	M <sub>2-34</sub>	V. G.	.888	.684	.19	11	
	1.887	M <sub>2-41</sub>						
	1.908	M <sub>1-70</sub>						
	1.886	W. M.						
May 10	1.958	E <sub>6</sub>	E.	.875	.725	.16	15	Do.
	1.912	M <sub>2-20</sub>						
	1.934	M <sub>2-20</sub>						
	1.929	M <sub>1-5</sub>						
	1.936	W. M.						
May 11	1.945	M <sub>3-8</sub>	V. G.	.887	.690	.17	10	Do.
	1.917	M <sub>3-74</sub>						
	1.905	M <sub>3-69</sub>						
	1.922	W. M.						
May 12	1.934	M <sub>1-81</sub>	S.	.885	11.721	.15	11	Do.
	1.931	M <sub>1-56</sub>						
	1.932	W. M.						
May 19	1.936	M <sub>2-34</sub>	S.	.884	.623	.42	23	Do.
	1.893	M <sub>1-24</sub>						
	1.912	M <sub>1-5</sub>						
	1.918	W. M.						

#### <sup>1</sup> Air mass 2-20.

<sup>1</sup> Air mass 2.30.  
<sup>2</sup> Air mass 1.42.

<sup>a</sup> Air mass 2.23.

<sup>4</sup> Air mass 1.86.

<sup>5</sup> Air mass 3.04.

\* Air mass 3.04.

\* Air mass 1.42.

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<sup>7</sup> Air mass 1.40.

**Air mass 1.68.**

9 Air mass 1.68.  
10 Air mass 2.27

<sup>10</sup> Air mass 3.27.  
<sup>11</sup> Air mass 1.64.

• All Mass. 1993.